

# SOLN1 25 V2 Quick Start User Guide & Operating Recommendations

For Fully Assembled Units and Fast Build Kits

Thank-you for supporting the SOLN1 Project by purchasing a SOLN1 25. This Quick Start User Guide gives an understanding of key SOLN1 components as well as basic information and recommendations on how to get the most out of your SOLN1 25.

Included with your purchase of fully assembled unit:

- Manuals for Solar Charge Controller and Inverter (located in small box). Be sure to familiarize yourself with these manuals. The Solar Charge Controller and Inverter are attached to the back of the Solar Panel.
- Two USB LED light bulbs.
- AC Charger for Lithium Iron Phosphate batteries (if ordered).
- SOLN1 25 Unit. Components are the Solar Panel, Solar Charge Controller, Inverter and Batteries (located in tubes on either side of the panel)

## KEY SOLN1 25 COMPONENTS

**Battery Plug.**



Disconnects charge controller and inverter from batteries. Reason: The Charge Controller and Inverter will slowly discharge batteries even with no load on them. Unplugging eliminates all draw of current from the battery packs.

When to disconnect Battery Plug:

- If you will not be using your SOLN1 for three days or more.
- If batteries in unit have a charge of 11 volts or less and you cannot immediately recharge them. Leave unplugged until you can recharge via sun or AC power. Recharge at first opportunity, i.e. you don't want to store unit long term with discharged batteries. Allowing batteries to discharge to 8 volts or less can permanently damage batteries.
- For long term storage (up to one year). Batteries should be fully charged (13.3 volts). Unit should be checked a couple times a year and recharge if necessary.

### AC Charger.



Read manual located with charger in box. This AC Charger allows you to charge (recharge) your LiFePO4 batteries from AC power. To charge your batteries, plug charger into AC outlet. Light on charger will be green. Next, plug AC Charger into SOLN1 Battery Plug (described above). Light on charger will turn red until batteries are fully charged, at which point it will turn green.

## Solar Charge Controller.



*USB Ports.* There are two ports on the the top right corner of the Charge Controller (a third port is on the Inverter).

*LCD Screen.* This screen has several different interface or display options. The default display shows battery voltage. The three yellow buttons manage the display. The left button switches between the different displays. The center and right buttons are for programming the controller. Read the manual for the charge controller to learn how it can be programmed.

The LCD Screen has the following displays:

- **Battery Voltage.** This is the default display seen in the photo above: b 13.2. This means that the batteries are charged at 13.2 volts. 13.3 volts is resting voltage of a fully charged panel. Low voltage is 11 volts. At 11volts, you should not run further load and should recharge. 8 volts or less will result in permanent damage to your batteries.
- **Photovoltaic Voltage** (volts being produced by the solar panel). In direct sunlight this will be displayed as: P 15.0, meaning that the solar panels are producing 15 volts.
- **Charge Current.** This is the charge going from the solar panel to the charge controller. Normally it will display within the range: C 0.7 - 1.2 A
- **Load Control Mode.** The default setting for this display is 24 Hour (24 H). This is where the Charge Controller can be programmed. Examples of program options are: run loads for specified times, or to turn loads on and off in response to daylight or night. To learn more about programming these options, read your manual. Page 8, section 1.3 Load Control Mode describes these programable options. Page 12, section 3.4 Controller Setting describes how to program the different options.
- **Load Current.** This display shows the load current (Amps) being drawn by any device you have plugged into your SOLN1 25. This does not register current drawn by items plugged into the two Charge Controller USB ports.

- **Charge Energy.** Shows the energy (KWH) generated by your panel over time. Resets whenever the Battery Plug is disconnected.

### Connections into Charge Controller.



The connection on the left is Power In from the Solar Panel. It is possible to connect multiple solar panels in series at this connection.

The middle connection is to the Battery Pack.

The connection on the right is Power Out to the Load. In the SOLN1 25 this connection goes to the Inverter. But it is possible to put in your own 12v cigarette lighter plug or any other 12v load. The Load Current display on the Charge Controller only shows load on this connection.

## Inverter.



The inverter converts current from 12v DC to 120v AC (or 220 AC).

The inverter draws about 0.1 A without any load on it. For this reason, we highly recommend that you always turn off the inverter when not in use. Leaving the inverter on for prolonged periods could drain your batteries.

The 2.1 Amp USB Port on the inverter is live and can be used even when the inverter is switched off.

If you are supplying your own inverter, keep in mind that the system is designed for 250 Watts.